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(54) **Seal**

(57) A seal for sealing between an item of sanitaryware and a surface adjacent which the item is installed, comprising two preformed, liquid-impervious strips (1, 2) having respective interlocatable members (3, 5).

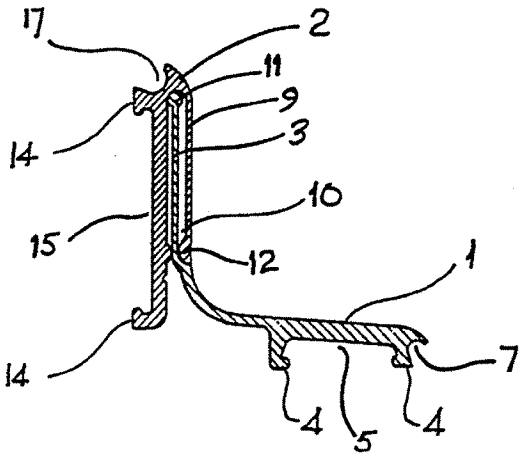

FIGURE 1

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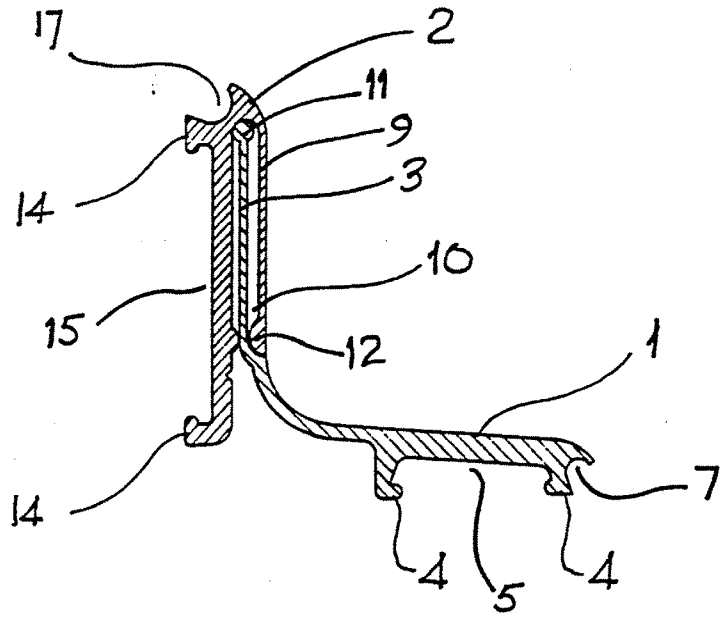

FIGURE 1

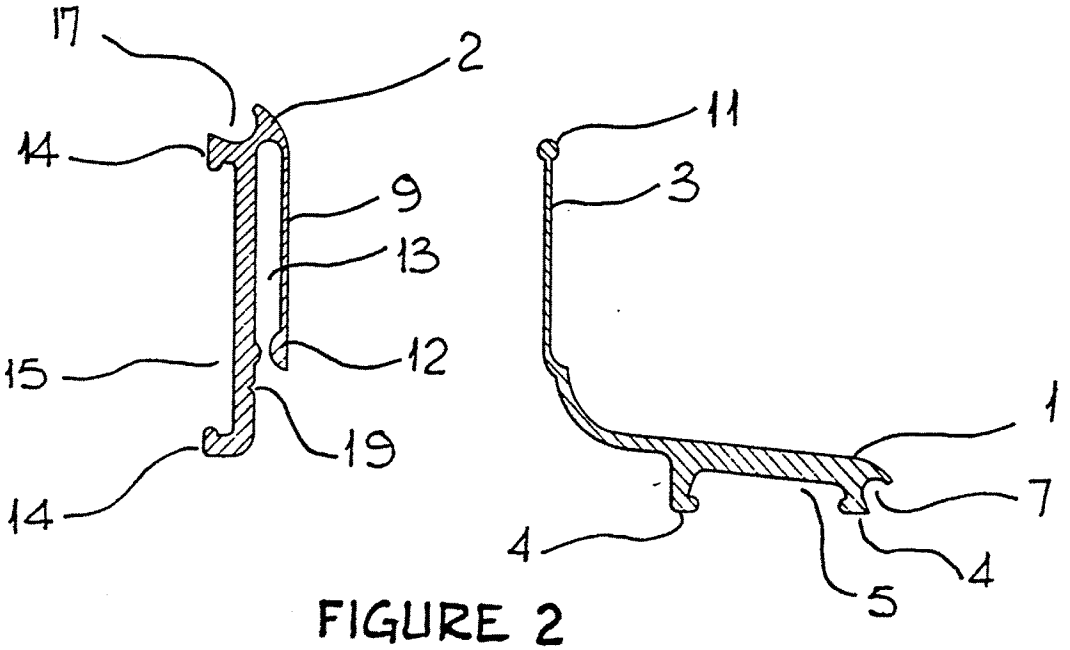

FIGURE 2

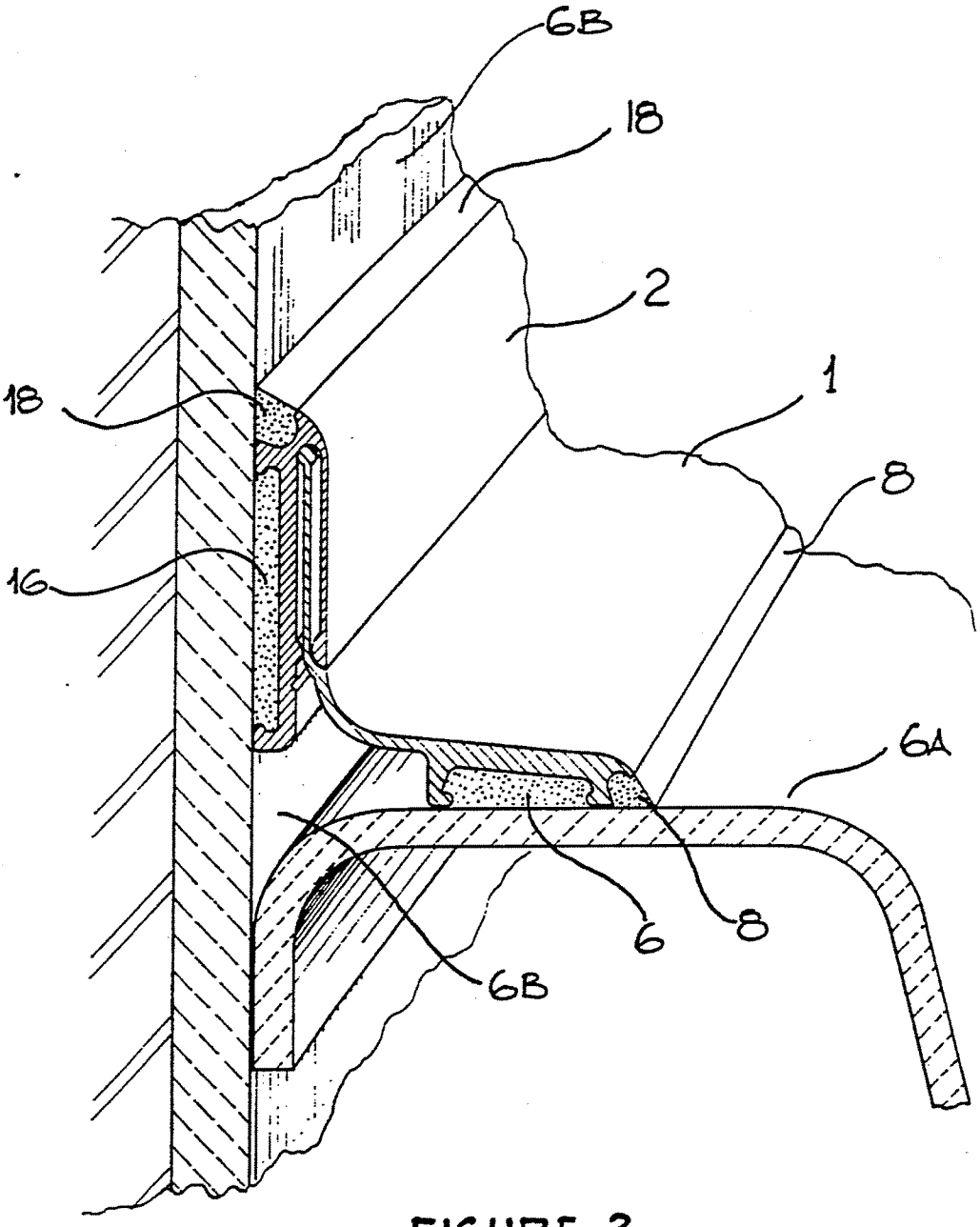

FIGURE 3

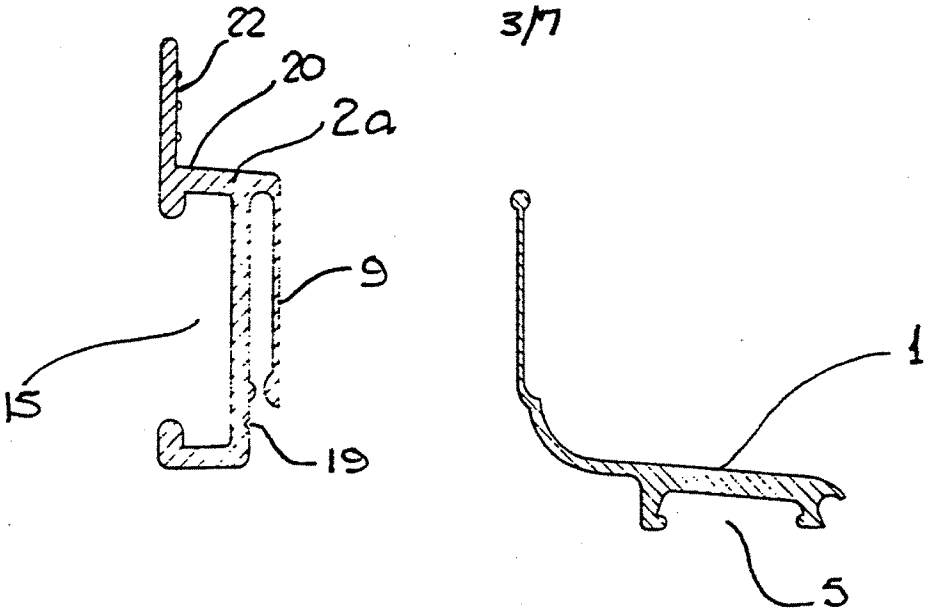

FIGURE 4

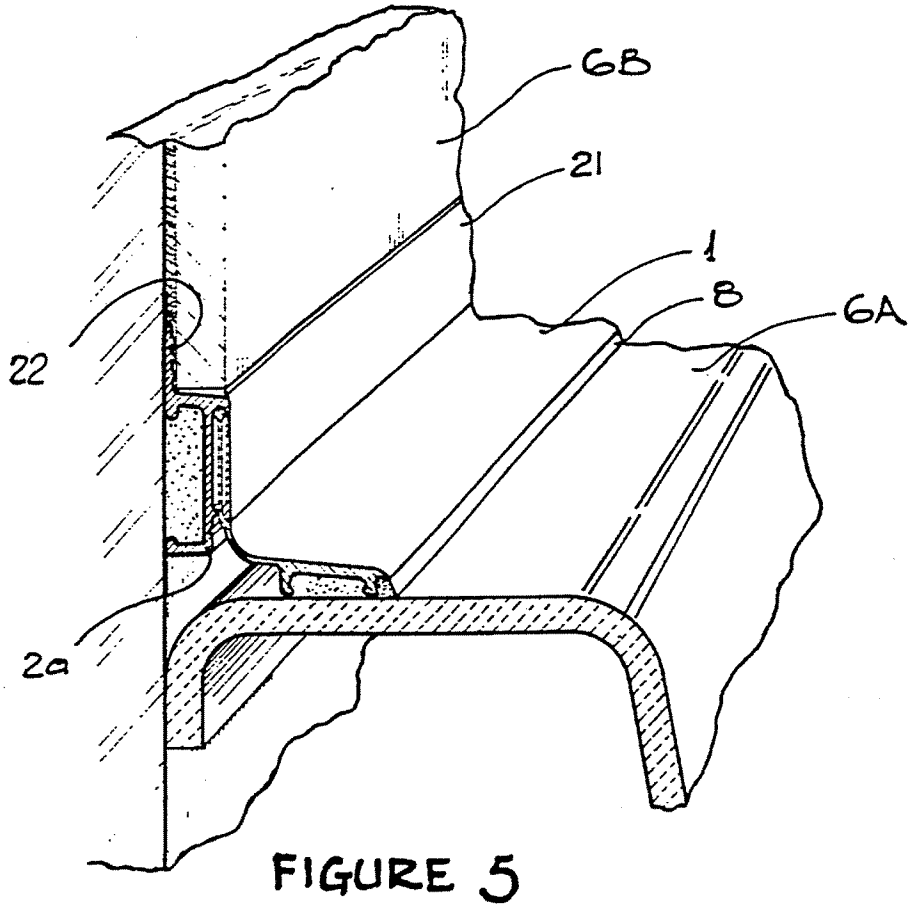

FIGURE 5

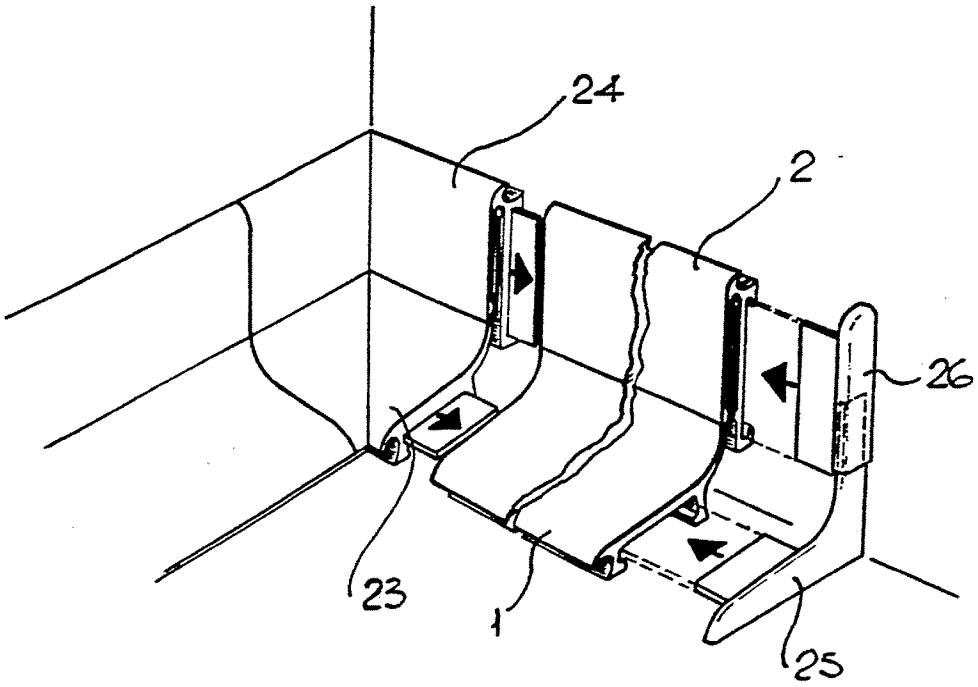

FIGURE 6

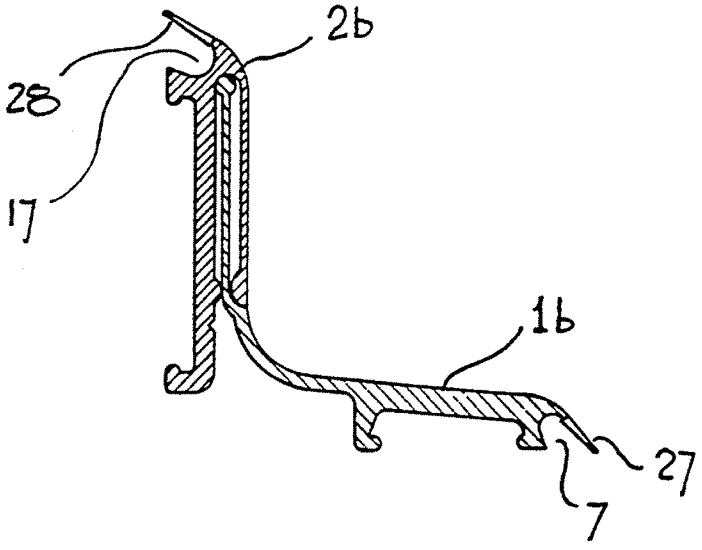

FIGURE 7

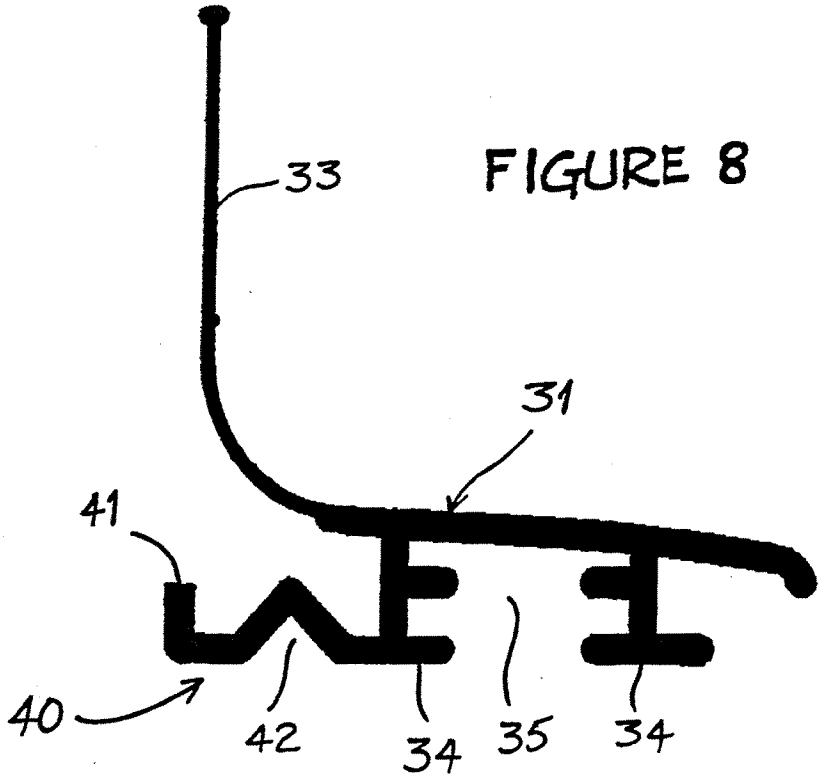

FIGURE 8

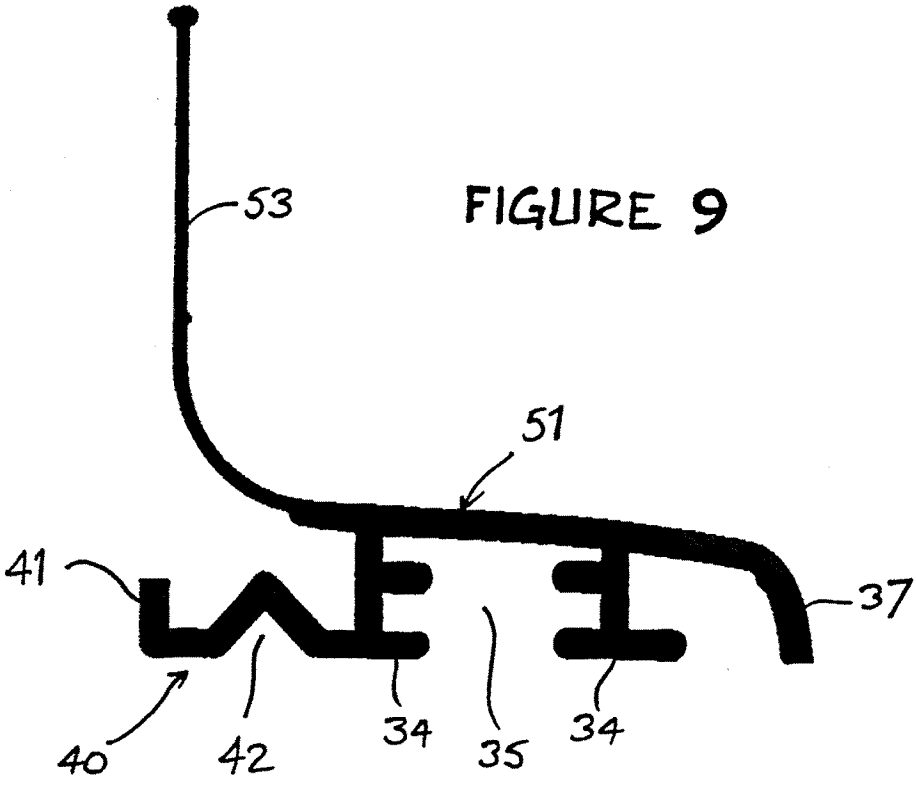

FIGURE 9

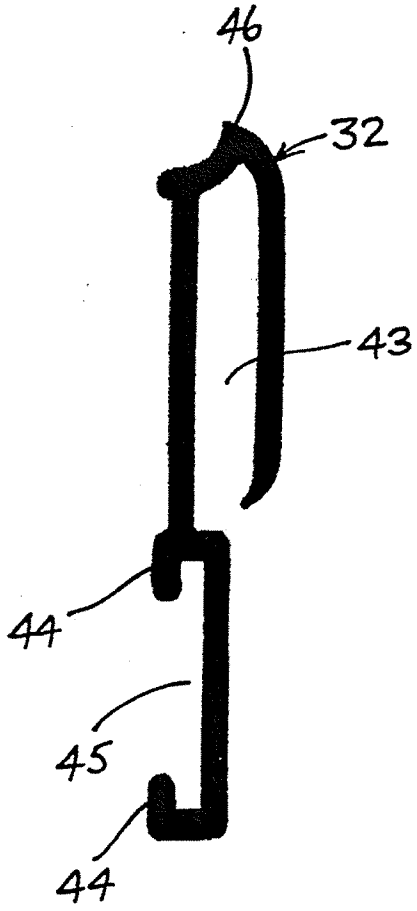

FIGURE 10

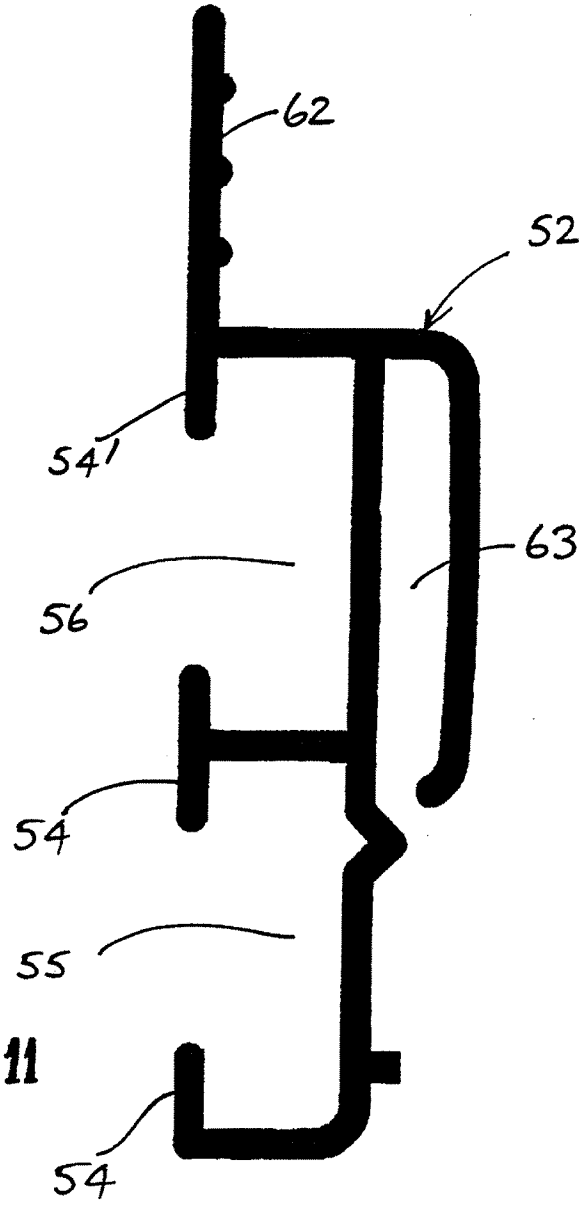

FIGURE 11

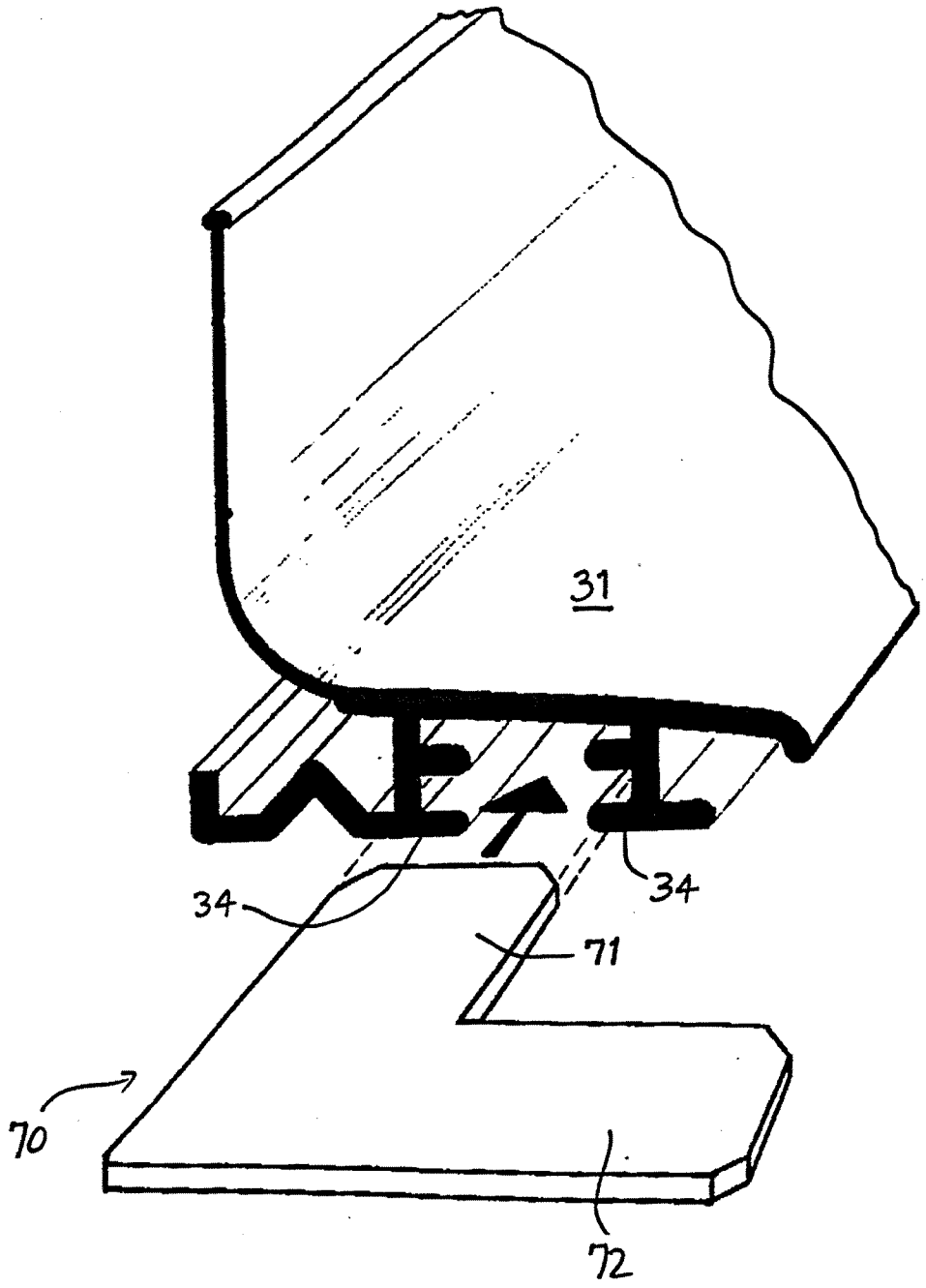

FIGURE 12

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SEAL

This invention relates to a seal and is especially, but not exclusively, concerned with a flexible seal for application to an item of sanitaryware, such as a bath, basin or shower tray, to prevent the seepage of water between the sanitaryware item and an adjacent wall or other surface against which the item is installed.

Known types of seal, comprising plastics adhesive strips, tapes or rubber/silicone mastic, all rely on the flexibility of a component, be it the rubberized edge of a sealing strip or the elasticity/adhesion of a mastic fillet, to absorb the vertical and horizontal differential movements often found with sanitaryware items in relation to the wall with which they abut and to which they are sealed. Sanitaryware seals of this type have, however, been found to have a limited effective lifespan. This may be attributed to several reasons; for example, with the seal being exposed, UV from sunlight can reduce the flexibility of the associated plastics or rubber materials, as can the effect of soap, detergents and most cleaning agents.

Thermal or structural movement between, say, a bath and an adjacent wall may also cause weakening of the seal therebetween, particularly as the flexibility of the seal material diminishes as the material ages and deteriorates. This results in loss of adhesion to the wall or sanitaryware, thus allowing water seepage past the seal, whereupon considerable damage can be caused to the fabric of a structure over a period, if left unattended.

A further, and possibly more satisfactory, method

of preventing this type of water seepage is the formation of a seal which offers the adaptability of application of a 'gun applied' type mastic to form the adhesive seal required to the wall and sanitaryware and also incorporates a sliding component or components to allow movement between said wall and sanitaryware, thus relieving the mastic adhesive of the tensile stresses caused by said movement, therefore increasing the effective life span of the mastic, its adhesion and, thus, the seal.

It is an object of the present invention to overcome, or at least substantially reduce, the disadvantages associated with known, seals of the types described above.

Accordingly, one aspect of the invention provides a seal for sealing between an item of sanitaryware and a surface adjacent which the item is installed, comprising two preformed, liquid-impervious strips having respective interlocatable members.

In use, one strip may be fixed to a rim, preferably the upper rim, of the item of sanitaryware adjacent the wall or walls to which the rim is to be sealed. This fixing may, for example, be effected by using a flexible mastic adhesive. This first strip incorporates a member which, with the strip thus fixed, forms a vertical upstanding section along at least part of the (upper) rim of the item of sanitaryware.

Also, in use, the other strip may be fixed to the adjacent wall by using similar mastic adhesive. This second strip may incorporate a member which, when the strip is correctly located and fixed, forms an

interlock and overlaps with the upstanding section of the first strip, thus forming a gravity water run-off surface and drip strip. The upstanding section of the first strip and the drip-strip of the second strip are so formed in section as to interlocate along substantially their full length, yet allow a vertically sliding or telescopic movement between them by varying the degree of overlap, when seen in section. They may also be thin in section so as to be flexible enough to allow a degree of lateral movement between them whilst maintaining the water run-off and drip capability.

The leading edges of the upstanding section and overlapping drip-strip may be enlarged in section sufficiently to provide a contact fit with each other, so forming a sliding seal against water being splashed in an upward direction and also to prevent the risk of water penetrating the seal by capillary action.

These enlarged edges can also serve to form a 'clip together' action between the two strips, the purpose being to facilitate assembly, installation and alignment.

In one embodiment of the seal of the present invention, at least one of the first and second strips incorporates a recess for the receipt of mastic as an adhesive for fixing to the item of sanitaryware and the wall, respectively, and a further recess being at their outermost edge, for application of mastic as a finishing/final seal between the installed strips and the item of sanitaryware and wall.

This latter facility is intended to allow the mastic to be successfully applied to the critical

edges of the seal, even where the sealing strips are being fixed to an uneven surface - for example, where the edges of ceramic wall tiles may project due to their misalignment during fixing.

In another embodiment of the seal, one of the strips, preferably the second strip, incorporates an upstanding section at its uppermost edge to allow both sealing strips to be installed prior to wall tiles, or other impervious wall finish, being applied, so that they may subsequently be fixed over the upstanding section, thus providing both an improved flush appearance and a gravity seal created by the overlap formed by the tiles' lower edges over that upstanding section.

In a development of the seal, one of the strips may incorporate a longitudinal groove to facilitate its penetration by a pin or screw, so that the strip may be fixed by such means in addition to the mastic adhesive previously described. This enables the strip to be held in position against the wall whilst the mastic adhesive is setting. This is particularly desirable if the wall to which the strip is to be fixed is non-planar in the region concerned.

In other embodiments of the seal, one or more contact adhesive, mastic sealant strips or beads may be applied during manufacture of the sealing strips in order to facilitate quicker fixing during installation.

Preferably, the seal may incorporate one or more corner mouldings, the purpose of which is to facilitate the fitting of the seal round 90 degree corners, typically the corner or corners of a room or

cubicle in which the item of sanitaryware is located. This obviates the need to cut the adjoining ends of the strips at 45 degrees to form a mitre joint or joints.

End cap mouldings may be provided to enhance the appearance of the installed seal.

In yet a further embodiment of the seal, the outer edge of at least one of the first and second strips is extended with a flexible plastics or rubber blade or other suitable section. This arrangement may negate the need for a mastic seal at one or both of the edges, which may be desirable in some types of installation, for example for use with some materials not compatible with mastics. It would, however, still be quite possible, and in some instances, advantageous, to apply a bead of mastic adhesive to the recess, below each of the flexible seals, by lifting same sufficiently to insert a mastic applicator nozzle and, thus, the mastic as the nozzle is drawn along under the seal.

In order that the invention may be more fully understood, preferred embodiments of the seal, in accordance therewith, will now be described by way of example and with reference to the accompanying illustrative drawings in which:-

Figure 1 is a sectional view of the assembled seal of a first embodiment;

Figure 2 is a sectional view of the separated seal strips of the first embodiment of seal;

Figure 3 is a detail perspective view showing a

section through the upper rim of a bath installation incorporating a seal of the first embodiment;

Figure 4 is a sectional view of the separated seal strips of a second embodiment of seal;

Figure 5 is a detail perspective view showing a section through the upper rim of a bath installation incorporating a seal of the second embodiment;

Figure 6 is a perspective view of a 90 degree corner moulding and an end cap of the seal of a third embodiment;

Figure 7 is a sectional view of the assembled seal of the third embodiment;

Figures 8 and 9 are respective sectional views of two other but different types of first strip for use with further embodiments of inventive seal;

Figures 10 and 11 are respective sectional views of two other but different types of second strip for use with further forms of inventive seal; and

Figure 12 is a perspective view of a corner connector used with the first strip of Figure 8 or 9.

Referring firstly to Figures 1, 2 and 3 of the drawings, a first embodiment of seal in accordance with the invention comprises two water impervious interlocatable strips 1 and 2, preferably extruded from a suitable plastics material.

The first strip has a longitudinal upstanding member 3 and feet 4, providing a longitudinal recess

5 in which a mastic adhesive sealant 6 (Figure 3) is applied prior to locating the strip 1 in position on the horizontal rim of an item of sanitaryware 6A, typically a bath or shower tray. At the outer edge of the first strip 1, a longitudinal recess 7 is provided so that a further bead of mastic sealant adhesive 8 may be applied to fill the void formed by this recess when the strip 1 is in place on the rim of the item of sanitaryware, thus forming a flexible waterproof seal at this line of contact between the item of sanitaryware and the strip 1.

The second strip 2 has a drip member 9 which, when the strip 2 is interlocated with the strip 1, forms an overlapping water run-off surface and drip-strip 10 over the upstanding member 3. The leading edge of the upstanding member 3 and the member 9 are enlarged in section, at 11 and 12, to form a sliding seal within a slot 13 formed behind the member 9. Strip 2 also has longitudinal feet 14 which form a longitudinal recess 15 in which mastic adhesive sealant 16 (Figure 3) is supplied prior to locating the strip 2 against the wall 6B to which the item of sanitaryware 6A has been positioned. At the top edge of the strip 2, a recess 17 is provided so that a further bead of mastic sealant 18 may be applied to fill the void formed by this recess when the strip 2 is in place against the wall, thus forming a flexible waterproof seal at this line of contact between the wall and the strip 2.

Strip 2 further has a longitudinal groove 19 which thins the strip 2 locally to facilitate penetration by hardened pins or screws so that strip 2 may be fixed along its length to an undulating or non-planar wall without its springing from contact the

said wall prior to the mastic adhesive sealant curing or setting.

It is intended that the seal, comprising first and second strips 1 and 2 be supplied and installed in the assembled state - as shown in Figure 1. However, when fixing the strips 2 to an undulating or non-planar surface, for example, and in order to achieve continuity of contact between the surface and the strip 2, it may be beneficial to pin or screw the strip to the surface at selected locations along it length - particularly, whilst setting or curing of any related mastic sealant adhesive is taking place.

To achieve this, the strips 1 and 2 may then be located and fixed with adhesive and pinned as required along the groove 19. Subsequently the strips 1 and 2 are re-assembled and the heads of the pins or screws then become hidden.

Referring to Figures 4 and 5 of the drawings, a second embodiment of seal in accordance with the invention comprises two water impervious inter-locating strips 1 and 2a preferably extruded from a suitable plastics material. The first strip 1 in this embodiment is identical to that in the first embodiment but the second strip 2a whilst generally similar to strip 2 described in the first embodiment, differs in respect of its topmost edge 20 which includes an upstanding member 22. In this second embodiment it is intended that the vertical face 21 of the installed seal will finish relatively flush with the adjacent tiled or otherwise finished wall surface and will achieve what may be considered a more pleasing appearance, with the member 22 being covered by tiles or other suitable wall surface finish.

This second embodiment of seal will probably, but not necessarily, involve the installation of the item of sanitaryware and seal prior to the fixing of adjacent wall tiles or other wall finish wherein the lower edge of the tiles or finish above the seal may subsequently overlap the upstanding member 22 of strip 2a. The seal from wall finish to strip is thus achieved by way of a gravity drip. Any void formed at this overlap may be suitably filled with a grout or other suitable filling medium compatible with the wall finish being used.

In the foregoing embodiments, a non-setting, contact adhesive mastic sealant may be applied during the manufacture of the strips. Such a mastic sealant would be located within recess 5 of strip 1 and recess 15 of strip 2 or 2a. Each would possibly have a release film that could be removed to expose the bonding face of the adhesive sealant immediately prior to installation of the seal.

Referring to Figure 6 of the drawings, the seal described in any foregoing embodiment, may be enhanced and completed by the provision of 90 degree corner mouldings 23 and 24 and end caps 25 and 26, which may incorporate a projecting tongue or tongues which can engage, with an interference fit, into the ends of recess 5 in strip 1 and recess 15 in strip 2 or 2a, prior to final fixing of the strips 1 and 2 or 2a.

Referring to Figure 7 of the drawings, a third embodiment of the seal in accordance with the invention incorporates the provision of preformed and applied, flexible plastics or rubber type water impervious seals 27 and 28 located at the respective outer edges of the strips 1b and 2b. A mastic

adhesive sealant may be applied to the recesses formed at 7 and 17, if such a secondary seal is required, by inserting the application nozzle of mastics cartridge gun under and between the flexible seals 27 and 28 and the item of sanitaryware or wall, respectively, and drawing the gun nozzle along the respective recesses 7, 17 as the mastic extrudes to fill the void behind the flexible seal 27, 28. The advantage of this embodiment is that a double seal is effectively created at the most critical point and that the mastic sealant will be concealed behind the flexible seals 27 and 28 so enhancing the finished appearance of the completed and installed seal.

Turning now to Figure 8 of the drawings, a further profile of first strip 31 for use with another embodiment of inventive seal is shown, which is generally the same as that of the first strip 1 described above in relation to the first and second embodiments of seal of Figures 1 to 3 and Figures 4 and 5, in that the strip 31 has an upstanding member 33 and feet 34 providing a longitudinal recess 35 in which a mastic adhesive sealant (not shown) can be received. However, this strip 31 has an additional component in the form of a flange 40 attached to the inner foot 34, whose right-angled free end 41 can engage the wall or other surface against which the associated sanitaryware item is installed. The flange 40 may be compressible when so engaged and mastic adhesive sealant may be received in a further groove 42 of, say, generally triangular cross-section..

The first strip 51 shown in Figure 9 is substantially identical to the strip 31 shown in Figure 8, except that it has its outermost free edge extended downwardly at 37 to engage and seal against

the sanitary item in use. This arrangement is similar to that described above in relation to the seal 27 of the third embodiment of seal of Figure 7, although the seal 37 is formed integrally with the remainder of the strip 51, rather than being preformed.

Figure 10 shows another cross-sectional profile of second strip 32 which can be used and is interlocatable with at least the first strip 31,51 described above in relation to Figures 8 and 9, whereby the upstanding members 33,53 of the latter are insertable in the slot 43 of the former.

Mastic adhesive sealant (not shown) may be provided in the recess 45 between the pair of feet 44 for engaging the wall or other upright surface against which the associated sanitaryware item is installed. Also the uppermost edge 46 of the strip 32 may be extended rearwardly, such that it can engage and seal against the wall or other upright surface.

Figure 11 shows yet another cross-sectional profile of second strip 52 which is similar to that described above in relation to Figure 10, in that it has a mastic sealant, grout or other adhesive-receiving recess 55 provided between a pair of wall-engaging feet 54 and a slot 63 for receiving the upstanding member of an associated first strip (not shown). However, it also includes a further mastic sealant, grout or other adhesive-receiving recess 56 provided between one of the pair of wall-engaging feet 54 and a third wall-engaging foot 54'. Further, this second strip 52 also has an upstanding member 62 located behind the bottom edges of a row of tiles (not shown) or other wall surface finish, as described

above in relation to the embodiment of Figures 4 and 5.

When the assembled seal is to follow a 90° corner, such may be achieved by mitreing the ends and butt jointing them together with a suitable solvent adhesive at the corner location. To assist in the rigidity of the 90° corner joint and its alignment, a corner connector, such as that shown at 70 in Figure 12, may be used. One arm 71 of the L-shaped connector 70 is inserted between the pair of feet 34. Similarly, the other arm 72 of the connector 70 is inserted between the pair of feet of another first strip 31.

It is to be appreciated that the second strip 2, 2a, 32, 52 may be arranged either beneath or upon a row of tiles or other wall covering.

CLAIMS

1. A seal for sealing between an item of sanitaryware and a surface adjacent which the item is installed, the seal comprising two preformed, liquid-impervious strips having respective interlocatable members.

2. A seal according to claim 1, wherein one of the strips includes a member which, in use, is arranged to form a generally vertical upstanding section extending along at least part of the rim of a sanitaryware item with which the seal is associated.

3. A seal according to claim 2, wherein the other of the strips includes a member which, in use, is arranged to form an interlock and overlap with the upstanding section of the one strip, thus providing a gravity water run-off surface and drip strip.

4. A seal according to claim 3, wherein the upstanding section of the one strip and the drip strip of the other strip are so formed in section as to interlocate along substantially their whole lengths.

5. A seal according to claim 3 or 4, wherein the interlocated upstanding section of the one strip and the drip strip of the other strip are slidable or telescopically movable with respect to each other, when viewed in section.

6. A seal according to claim 3, 4 or 5, wherein the interlocated upstanding section of the one strip and the drip strip of the other strip are sufficiently flexible to allow lateral movement therebetween, whilst maintaining their water run-off and drip

capability.

7. A seal according to any of claims 3 to 6, wherein the leading edges of the upstanding section and overlapping drip strip of the two strips provide a contact fit with each other.

8. A seal according to any preceding claim, wherein the two strips can be clipped together.

9. A seal according to claim 8 when dependent upon any of claims 3 to 7, wherein the upstanding section and overlapping drip strip can be snap-fitted together.

10. A seal according to any preceding claim, wherein at least one of the two interlocatable strips includes a longitudinal recess for the receipt of mastic adhesive.

11. A seal according to any preceding claim, wherein at least one of the two interlocatable strips has a longitudinal groove extending along its outermost edge for the receipt of mastic adhesive therein.

12. A seal according to any preceding claim, wherein one of the strips includes an upstanding section at its outermost edge.

13. A seal according to claim 12, wherein said one strip is the other of the two strips.

14. A seal according to any preceding claim, wherein one of the strips has a longitudinal groove to facilitate its penetration by a fixing element, such as a pin or screw.

15. A seal according to claim 14, wherein said one strip is the other of the two strips.

16. A seal according to any preceding claim, wherein the outer edge of at least one of the strips is extended to engage the rim of an associated sanitaryware item or surface adjacent which the item is installed.

17. A seal according to claim 16, wherein the outer edge of at least one of the strips is so-extended by means of a flexible plastics or rubber blade or other suitable section.

18. A seal according to any preceding claim including a corner connector receivable in a longitudinal groove or recess of at least one of the strips.

19. A seal according to any preceding claim including an end cap.

20. A seal according to any preceding claim, wherein the other strip is installable beneath or upon a row of tiles or other wall or surface covering.

21. A sanitaryware seal substantially as hereinbefore described with reference to the accompanying drawings.

22. A method of sealing an item of sanitaryware to a wall or other surface against which the item is installed, using a seal according to any preceding claim.

23. A method of sealing a sanitaryware item to a wall or other surface against which the item is installed, substantially as hereinbefore described.

16

Patents Act 1977
Examiner's report to the Comptroller under Section 17
The Search report)

Application number
GB 9511221.5

Relevant Technical Fields

(i) UK Cl (Ed.N) F2B

(ii) Int Cl (Ed.6) F16J 15/00, A47K 3/00

Search Examiner
A R MARTIN

Date of completion of Search
15 AUGUST 1995

Databases (see below)
(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASES: WPI, CLAIMS

Documents considered relevant following a search in respect of Claims :-
ALL CLAIMS

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages		Relevant to claim(s)
Y	US 4829731	(SCHLUTER) see Figure 1	Claim 1 at least
Y	US 4204376	(OWENS-CORNING) see Figure 2	Claim 1 at least
X, Y	CA 2029100	(SZYJKOWSKI) see Figures 1 and 2	Claim 1 at least

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